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The Larval Stage of Protoparce rustica Fabr.

By ELLISON A. SMYTH, Jr., Blacksburg, Va.

Although *Protoparce rustica* is well known in the moth state, there has been, so far as I can ascertain, no figure or description of the larva, since the fairly good figure and meagre description given by Abbott in Vol. I, pl. 34 of "Abbott & Smith's Lep., Georgia." Prof. John B. Smith, in his monograph of the Sphingidæ, makes a similar statement, adding that Burmeister gives a brief original description from Brazilian specimens. Duncan's description and plate in Naturalists' Library, Vol. III, Clemen's description, and all others that I know of are copied from Abbott & Smith's plate.

This is my apology for presenting, through the kind medium of the "NEWS," the figures of three stages of the larva, with descriptions of the larva and egg. Several times in the farther South I have found the mature larva of *rustica*, but last Summer a number were obtained here, in Montgomery Co., Va., and from these the water-color sketches were made by the author, from which sketches the plate here given has been prepared, showing the larva in three stages, and the pupa. Fig.

A, larva half grown before last moult; fig. B, full grown after last moult; fig. C, full grown, two days before pupation; and fig. D, pupa.

The larva found last Summer, several of which were full grown and a number about half grown, were taken feeding on common sunflower (*Helianthus annuus*). The older specimens ate the coarse leaves down to the leaf stalk, leaving only short portions of the coarser veins. They seemed to feed at all hours of the day, when well grown their weight causes them to hang back downward from the leaves; the approximation of the ends of the oblique lateral stripes on the central dorsal line was very protective in pattern, and the first were found only by their excreta, tho' I must have passed daily so close under them as to almost brush them with my head, the sunflower on which they were feeding being just at the entrance of my garden gate. After careful search I found one egg, which failed to hatch. It was laid on the upper side of a sunflower leaf, was four millemetres in lateral diameter, vertical diameter a little less, being a flattened hemisphere in shape, somewhat rounded underneath, depressed slightly above in centre, and was of a clear transparent yellow-green.

The full grown larva, in the height of its developement after last moult, is five and a half inches long when fully extended, depth, dorso-ventrally, five-eights of an inch. Head rounded; dark clear green; two clear blue stripes from summit of centre of head in front diagonally down to basal outer corners of head. First three segments yellowish green, lighter above, with two dorso-lateral lines composed of whitish yellow tubercles tipped with brown; these extend to beginning of fourth segment. A dorsal greenish blue-white line along centre of first four segments. Remaining segment shade from light pea-green (after quite yellow) down to dark clear blue-green below. From the line marking the beginning of the fourth segment and from a point opposite the stigma of that segment, an oblique yellow-white band, sharply cut, runs to near the top and rear of fourth segment, continued on over fifth segment, and ending in center of top of sixth, where it becomes nearly parallel with its fellow from the other side; after entering fifth segment this

PROTOPARCE RUSTICA, LARVA AND PUPA.

band changes to pinkish white, fainter on top of sixth; on its whole length it is sharply faced above with dark blue-purple (varying in some specimens to blue-brown) which fades into the light white-green of dorsum. The remaining six lateral oblique lines, are, mutatis mutandis, similarly arranged, only that the yellow band is brighter and wider and the dark facing above is more distinctly red-purple, than in the first line. The last of these lateral oblique bands, the seventh, ends at the base of the caudal horn, into the under portion of which the yellow band fades. Between and under each of these seven lateral bands, starting at beginning and near top of the last segment which each band covers, is a greenish parallel line converging with its fellow from the other side on the dorsum. Caudal horn clear yellow-green covered with yellow dark-tipped granulations. Anal lap edged with clear yellow-green. The oval stigmata whitish buff, thinly edged with black, with black central line. Rim of prolegs yellow, hooks black. True legs buff, black jointed. A central greenish blue interrupted dorsal line for whole length of body.

The half-grown larvæ are of a clearer yellow above the *rose*-colored oblique lateral bands and abruptly blue-green below the whitish yellow underfacing of same. These lines appear distinctly elevated, like ridges, up to the last moult.

Several days before pupation, the blue-green of the body becomes a yellow-green and all the colors and markings less distinct, the purple of the lateral stripes becoming a dirty green-blue, and fading into colors above it, not sharply cut as in earlier stage, and the larva becomes much stouter and somewhat shorter.

My larvæ descended to the bottom of an 8 inch layer of sifted earth in the cage, each making a compact broadly elliptical cell, about four by two and one-half inches; the earth in the cell-wall being so firmly pressed together that the cell retained nearly its whole shape when the earth was turned out of the jars.

The pupæ that I obtained varied from two and 7-10 inches to three inches in length, and from 7-10 to ¾ inches in greatest diameter (at far end of wing). The "tongue case" is very

stout, with a pear-shaped swelling at the free end, which presses against the median ventral line about 5/8 of an inch from anterior extremity of pupæ, being much shorter and stouter actually and in proportion to that of either *carolina* or *celeus*. Along its sides, the "tongue case" is coarsely and deeply marked with alternate, sharp file-like elevations and depressions. The color is shining black-brown.

Abbott gives the food plants as chionanthus, privet, and lilac, all of the olive family. I have twice found the full-grown larva on heliotrope, one of the Borraginaceæ, and have good evidence that they feed also on the crape myrtle (*Lagerstræmia*, one of the Lythraceæ), and, as above stated, have taken in numbers, from the egg up to full-grown larva, on *Helianthus annuus*, thus giving it a wide range of food plants.

The moth is not uncommon here, and is often taken at dusk on honeysuckle; though it is by no means abundant. It comes also to light, and I have taken fine specimens in my hall-way, attracted by the electric light. In South Carolina I have taken it abundantly on blossoms of "jimson weed" (*Datura stramonium*). On the wing, it is readily distinguishable from *P. celeus* by its larger size and more stately movements, lacking the quick, restless, darting flight of *celeus;* while the readily discernable white spaces aud maculations as well as its larger size, distinguished it easily from the more uniformly colored and smaller *P. carolina*, which resembles it more in manner of flight.

A $40-DOLLAR BUTTERFLY.—Entomologists went to Convent Garden from all parts of the country, says the *London Globe*, when the celebrated collection of butterflies and moths made by the late Samuel Stevens, F. L. S., F. E. S., was sold by his nephew, the well-known auctioneer. Mr. Stevens had continued his work of collecting, breeding and buying for sixty years, and many specimens are already historic, having come from other noted collections. The prices established a record. The "large copper" butterfly, long since become extinct, always attracts bidders, but £8, given for an exceptionally fine male, creates a record, and even for one of the females £6 5s. was bid. A specimen of the common "painted lady" also fetched £8; while another of the same species cost its buyer £6 10s. A handsome "red admiral," which is perhaps nearly as often seen as the "small tortoiseshell," was sold for £5 10s., while a "peacock" with twenty eyes on its wings went for £5.

The Destructive Diplosis of the Monterey Pine.

By W. A. SNOW and HELEN MILLS,
Stanford University, California.

PREFATORY NOTE—While the late W. A. Snow was engaged as assistant and instructor in entomology at Stanford University, he discovered and began the careful study of a new species of *Diplosis* which was vigorously attacking the Monterey Pines growing on the campus and in the neighborhood of the University. The Monterey Pine (*Pinus radiata* Don. and the Monterey Cypress (*Cupressus macrocarpa* Hartw.) are the conifers most abundantly used as ornamental trees in the grounds and parks of the residents of the San Francisco peninsula. The new *Diplosis* is the most formidable pest which the Monterey Pine has to struggle against, and it is still a question, despite the beneficial activity of certain parasites of the midge, whether the pest may not succeed in killing many of the splendid trees of the region. The pest is extremely abundant, thousands of trees being attacked, and most of the infested trees harboring myriads of the insects.

Mr. Snow began his observations in November, 1897, and continued them until March, 1899. Since that time Miss Helen Mills, student in the department, has continued the study of the pest. Mr. Snow's long-continued careful observation and study of the insect, resulted in the nearly complete working out of its extremely interesting life history. With characteristic thoroughness Mr. Snow extended his work to include a valuable compilation of facts regarding the already known pine midges of this country and Europe. He also interested a botanist, Mr. Cannon, assistant in the University, in the character of the deformation of the plant tissue, and a careful study was made by Mr. Cannon of the pathologic phenomena in the growing buds and needles due to the presence of the irritating and food taking pest (an account published elsewhere). Mr. Snow's sad death (by drowning in San Francisco Bay, Oct. 10, 1899) leaves unpublished any reference at all to this last undertaking in his career as a student of entomology. In fairness to his memory and in fair-

ness to entomologists there should be published some adequate account of this last investigation. But the editing of the mass of notes at hand is a task I am, at present, unable to undertake. The best I can do is to offer this briefest abstract of the life history of the new pest together with a description of it, revised by Dr. S. W. Williston. In making this abstract Miss Mill's notes have been also referred to, and the drawings were made by her.—VERNON L. KELLOGG.

In the fall of 1896 certain of the Montery Pines (*Pinus radiata* Don.) on the campus at Stanford were noticed to have their needles shortened and swollen at the base. The injury appeared to be such as might have come about through a sudden retarding of the growth of the needles. In the Autumn of 1897 the injury to the pines was widespread and very noticeable. Examination of the stunted and swollen needles revealed Cecidomid larvæ lying at the bases of these needles, and the injury was definitely traced to them. The first adults were obtained in the laboratory Jan. 12, 1898, from affected branches brought to the laboratory a month before. The adults were found to be an undescribed species of *Diplosis* related to the already known half dozen species of *Diplosis* known to attack the pine trees of Europe and America.

The eggs (fig. 1, e) are smooth and elliptical, and light yellow in color changing to orange-yellow as the embryo develops within. The female moves about over a terminal bud attempting at intervals to thrust her long flexible ovipositor in between the scales. When successful she deposits from 2 to 24 eggs in mass. The ovipositor is sometimes bent like a bow by the efforts of the insect to force apart the scales of the buds. Not infrequently females would be found caught and held by the pressure of the scales on the ovipositor. The egg stage is about two weeks. The female dies soon after oviposition.

The larvæ (fig. 1, l) immediately after issuing from the eggs make their way into the basal part of the bud and remain in there. The body is broadly elliptical and reddish yellow in color and when full grown is from 1 mm. to 1.5 mm. long. The breastbone (fig. 1, b, b), well chitinized in the older

stages, is not visible in newly-hatched specimens. None of the abdominal segments bear nipple-like spiracles. The skin is covered with fine spinules. When ready to pupate the larva usually spins a thin oval cocoon. Sometimes it does not. The larvæ pupate within the deformed buds. The duration of the larval stage is ten or eleven months.

The pupæ (fig. 1, p) are of the same general color as the larvæ, the thoracic region of the body being darker. The body is covered with cuticular spinules as in the larva. The breathing-tubes are non-segmented and are slightly folded over at the top. The duration of the pupal stage is three or four weeks.

Adult.

Diplosis pini-radiatæ n. sp.

Male (fig. 2).—Antennæ slender, a little shorter than the body, yellow or brownish yellow, the basal and terminal joint darker; basal joint large; second joint smaller, more globular, sessile; remainder of antennæ with twenty-four spheroidal dilatations, the terminal one more conical, and with a suture separating the minute terminal joint; petioles slender, about as long as the dilatations proximally, proportionally a little longer distally; the swellings decrease in size uniformly and gently, each with a verticil of black hair and a circle of shorter, yellowish looped filiments more distally. Head deep brown or black. Mesonotum dark reddish brown or blackish, somewhat whitish pruinose, and with three rows of dusky hairs. Pleuræ above, and the scutellum reddish. Abdomen obscurely reddish brown or black, with rather long, blackish hairs. Legs yellow or yellowish, with close-lying, for the most part, black hairs, and longer, chiefly white hairs, especially upon the tibiæ and tarsi; tip of tibiæ and tarsi usually brownish. Wings greyish hyaline, with blackish hairs along the costa, and a fringe of longer dark hairs along the posterior margin. The first vein terminates near the middle, the third at the extreme tip of the wing, the latter strongly convex; origin of third vein indistinct; wings rather slender.

Female (fig. 3.).—Basal joints of antennæ as in the male, the twelve dilatations are more elongate cylindrical, the petioles much shorter; the dilatations are more slender distally and show here slight constrictions. Mesonotum usually less deeply colored, the upper part of the pleuræ and the scutellum yellow or yellowish. Abdomen red, the basal segments above obscurely marked with brown or black hair, loose, abundant and long; ovipositor usually protruding about as far as the length of the body.

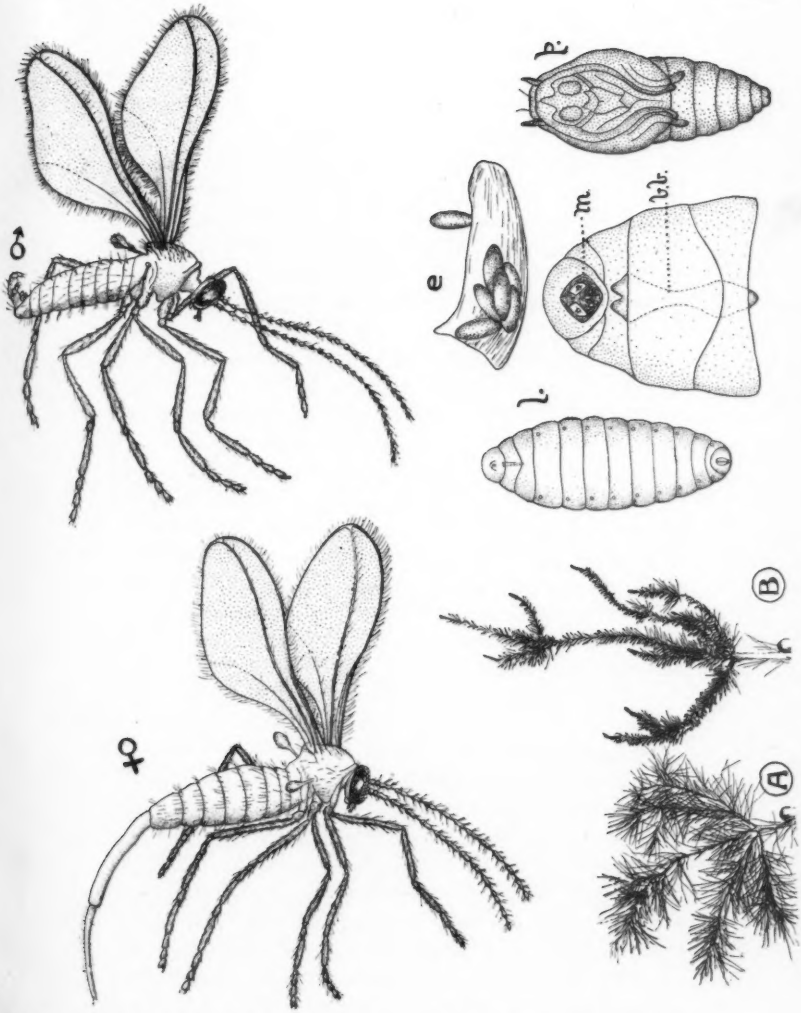
Five males and five females, No. 232, Leland Standford University, June, 1899.

There seems to be but one generation a year. Adults begin to issue about the middle of January and continue to appear until the first of March. Egg-laying proceeds all through this time, and old larvæ and pupæ may also be found all through this period (no larvæ towards the end of the period). The eggs hatch in about two weeks and these larvæ lie in the bases of the fascicles of needles all through the Summer and Autumn and early Winter not pupating until December. The adults issue in a few weeks and the life cycle is rebegun.

The character and extent of the injury caused by the insect make of it a serious pest. The number of larvæ lying in the bases of the fascicles is sufficient to completely stunt and deform all the needles of the fascicle. On a single tree three-fourths of the fascicles may be thus injured. This practical denudation of the tree may be repeated several times. It is simply a matter of how many such denudations the tree can withstand. Plate XII, made from a photograph of an unattacked branch and a seriously attacked branch, shows better than words can explain the effective character of the pest's injuries.

Fortunately several natural enemies of the pest are at work, and in many places have done much to dissipate the threatened danger. *Polygonotus diplosidis*, previously found as a parasite of *Diplosis pini-inopis* O. S. (scrub-pine in New Jersey), and a mite very like *Pediculoides ventricosus* (referred to by Marlatt as an efficient agent in the destruction of the eggs of *Cicada*), are both doing good work. The mite feeds on eggs, larvæ and pupæ indiscriminately. It attaches itself by its mouth-parts and forelegs to a larva and clings to it until the death of the larva. The usual predaceous insects, such as the larvæ of *Hemerobius* and *Chrysopa*, the larvæ and adults of several Coccinellids and the nymphs of certain Reduviidæ are all to be found on the pines and probably help in fighting the pest. The Ruby-crowned Kinglet has been observed to eat many of the midges. The birds pick off the females while they are on the buds ovipositing.

The pest is not confined to the Monterey Pine (*Pinus radiata*), but has been taken from the following species of *Pinus* : *tuber-*



D, FLORIS PINI RADIATÆ. E, EGGS. L, LARVA. BB, BREST-BONE. M, LARVAL MOUTH-PARTS. P, PUPA. A, MONTEREY PINE, NORMAL. B, MONTEREY PINE, INJURED.

culata, *muricata*, *sabiniana*, *coulteri* and *sylvestris*. *Pinus sylvestris* is an European species and is attacked in Europe by three species of *Diplosis*, viz., *D. Pini*, *brachyntera* and *signata*. But all of these pines are attacked but slightly compared with radiata. As regards the geographical distribution of the pest, it has been found abundantly at Stanford University, at Menlo Park (a village only two miles away), and in small numbers at a number of other places on the San Francisco peninsula and in the Santa Clara valley. But its center of distribution is evidently the extensive groves of Monterey Pine on the Stanford ranch (University campus) and neighboring extensive grounds of the residents of Menlo Park.

In the Golden Gate Park at San Francisco apparently the same species of *Diplosis* was found in February and March, 1897. Many specimens of eggs, larvæ, pupæ and adults were obtained and examined but, strangely, there was no shortening or swelling of the needles of the attacked fascicles, although the needles turned yellow. The larvæ were situated always near the base of the needles. The characteristic deformation of the needles on the affected trees at Stanford was always present whatever the species of pine. But here in Golden Gate Park, 35 miles distant from Stanford, the Monterey Pines, although attacked by apparently the same pest, do not show the deformation. [One of Mr. Snow's notes touching the identity of the flies from the two places is: "March 2; Golden Gate Park flies issuing in laboratory; they look for all the world like our *Diplosis* here. Don't understand this.]

There are several species of *Diplosis* which attack the needles of various species of pine in this country and Europe. These are *Diplosis brachyntera*, *D. signata* and *D. pini* on the European *Pinus sylvestris; D. pini-inopis* on the Jersey or scrub pine, *Pinus inopis; D. brachynteroides*, also on *P. inopis*, and *D. pini-rigidæ* on the American pitch pine, *P. rigida*.

Diplosis pini differs from our Monterey Pine species in that the larva bears upon its back two rows of setiferous fleshy processes or caruncles. They do not cause gall-like swellings at the bases of the needles. The joints of the male antennæ are double and the ovipositor of the female is short. This Euro-

pean species and another, *Diplosis pini-maritimæ*, and the American *Diplosis pini-inopis* Osten Sacken (which that author says may be the same as *D. pini*), pupate out upon the needles in a resinous cocoon. The Montery Pine fly never pupates out upon the needles and its cocoon is made of the fibres and is spun by the insect.

Diplosis brachyntera of Europe has upon the back of its larva "Dornwärzchen" or thorn papillæ. The larva live between the needles which are stunted but not swollen at their base, and pupation takes place in the ground. In these points it differs from the present insect.

Diplosis brachynteroides O. S. is described only from the deformations produced by the larvæ which, though on the eastern scrub pine, are similar to those on the Monterey Pine, except that the needles strongly diverge, which they are not caused to do in the present case. To his rather inadequate description Osten Sacken adds the supposition that the larvæ pupate in the ground, since he saw some individuals caught in a spiders' web apparently as they journeyed toward the ground.

The European *Diplosis signata* is distinctly different from our species, and it will be sufficient to say that the antennæ of the male are composed of alternate single and double joints.

Dr. Packard's description of his *Diplosi pini-rigidæ* from the pitch pine of the Northeastern States is drawn very vaguely, but it undoubtedly strongly resembles the present species. The chief differences are apparently as follows: In Packard's species the larvæ lie between the two inner needles of the whirl while the third or outer needle is frequently not swollen. The larvæ ascend to the terminal buds before pupation and there construct a cocoon of the pitch which exudes from these buds. "His statement that there are two broods may be disputed, I believe. In his description he has mistaken the origin of the third vein for the cross vein."—(SNOW.)

MR. H. K. BURRISON will go to the Yellowstone Park this Summer to collect. He states that he was compelled to pay duty recently on some butterflies and the New York Custom House classified them as "a non-enumerated manufactured article" and asked twenty per cent duty but finally accepted ten per cent.

Some Notes on the Habits and Capture of Aegiale streckeri Skinner.*

By ERNEST J. OSLAR, Denver, Colorado.

Owing to very little being known of the habits of this interesting and beautiful species of *Ægiale* and of its rarity in collections, I thought it would be of interest to readers of ENTOMOLOGICAL NEWS to give a few facts in regard to its characteristics and environments, which the writer had the pleasure of observing in the past season during a three months collecting tour in the southwest corner of Colorado.

I found it extremely difficult of approach and capture, in fact, it was without exception the most difficult of all diurnals that it has ever been my lot to tackle. I found it an utter impossibility to capture it in the hot mid-day sunshine, owing to its continuous very swift flight, circling around a large area, which it seemed to delight in keeping up for hours, pausing for a few seconds once in a great while to rest on a rock, and before one could get within striking distance it would shoot up again like a sky-rocket, emitting a peculiar snapping-like sound similar to a large species of black underwing grasshopper that is found throughout the the Rocky Mountain region. Another difficulty attending its capture was the rough nature of the locality in which it made its haunts, being on the slope of a steep foothill, covered with small rocks and boulders, cacti, yuccæ and sage brush, that led up to the top of what is called the Florida Mesa, situated twenty miles east of Durango, Colorado. By exercising a little patience and keeping myself out of sight in the shade of a large sage brush, from which I could observe their movements, I was rewarded by the discovery of two important facts, which materially aided me in making their capture. The first thing that attracted my attention was, that only the males were on the wing during the hot sunshine, and the females remained concealed in the shade, settled with closed wings on the main stem of the sage brush during the day, and only flew when disturbed, and then only to a short distance to alight on another sage brush.

* See ENT. NEWS, Vol. xi, pl. 2, Fig. 27.

To capture them in that position was an impossibility, for not only did you run the risk of ripping your net all to pieces, but loosing your quarry in the bargain.

I had been told by a celebrated collector, who has made annual trips to this State for a number of years, that he had once taken *A. yuccæ*, var. *coloradensis*, without any trouble, by getting up in the early morning before sunrise, when he found them clinging to the stem of the yuccæ asleep; all he had to do was to pick them off with his finger and thumb and put them in his killing bottle.

Profiting by such information, I undertook to try it myself, so taking blankets and supplies along I camped on the spot for three days and nights, where I had previously located *streckeri*. I may add, right here, the scheme did not work at all in this instance, but I was rewarded for my trouble in another unexpected way.

What I did discover, however, proved conclusively that *A. streckeri* in habits is as much a moth as a butterfly.

While sitting quietly by my camp-fire waiting for water to boil to make coffee, the sun having not long gone over the La Plata range in the dim distance, my attention was drawn by a loud humming sound that seemed to come from all around me. Upon investigation, to my great astonishment, I saw numbers of ♀ *strekeri* flitting in and out and among the sage brush and yuccæ, each bent upon seeking a suitable yuccæ plant to deposit her eggs on. Even at this late hour of the day I found them very alert and wary, and they seemed readily able to detect my presence and avoid me whenever I attempted a move to make a capture.

I found the most successful *modus operandi* to adopt to effect their capture was to follow one cautiously as it flitted from one yuccæ plant to another and get up to it as near as possible so as to be within striking distance the moment it paused on the spine of a yuccæ to deposit its egg. During the process of egg laying its wings still continued to be in motion similar to a hawk moth, and it took but a few seconds to deposit its single egg. It would then detach itself suddenly from the yuccæ with a snapping sound and continue its search for another suitable

yuccæ and which it seemed to be very particular and fastidious in choosing. I noticed it always selected a small and young plant that grew apart by itself from the larger groups or clumps of yuccæ.

I may add, I continued to hunt and capture specimens until it became too dark to see them, but long after I had returned to camp I could hear them humming around me, proving, beyond doubt, they are as much nocturnal as diurnal in their habits.

I first discovered *strekeri* on May 27, 1899, but it was evident they had been out some time prior to that date, the first lot taken being all more or less battered and worn, but the second time I visited the spot, which was a week later, a fresh crop of perfect specimens was then just out. I continued the visits weekly till first week in July; by that time all had disappeared. I found it difficult to secure perfect specimens after netting them, as once in the net they made a tremendous fight for liberty. In bottling them in the ordinary way while in the net, the method applied to all the Hesperidæ, I found useless, as by the time the cyanide had taken effect the specimen was worthless. After experimenting with a number of things for quick killing, I found the most effectual and the method giving the best results, was to have in readiness a small glass syringe charged with sulphuric ether. By cornering the specimen as quickly as possible the syringe could be used, which instantly gave the specimen its quietus; a strongly charged cyanide bottle did the rest.

It was by accident I came across *A. streckeri*, the first specimen I secured had been run over by a buggy and was a ♀, it had evidently strayed away from its haunts, for it was five miles away from where I afterwards found them in quantities, and only at the one spot. After sending it on to Dr. Skinner for identification, he wrote me, "I had struck a mighty good thing, and that very few collectors had *streckeri* in their collections, and only one ♀ was in any collection."

Such a statement practically proves that *A. streckeri* is nocturnal, at least the females are. I never took or saw a male in the evening, and no one I presume ever thought of looking for the species in the evening, hence this accounts for the fact that

only one female had been taken. In my case, the greater number of specimens I took and saw were females. This is another illustration and proof that clinches the saying, "that nothing is rare when you know when and where to find it."

The species of the genus *Ægiale* are, without doubt, extremely local, which certainly cannot be accounted for by lack of food plant, as the soap weed or yuccæ is to be seen in quantities throughout this State, yet it is only in widely separated spots that the genus *Ægiale* occurs.

We have recently had a pleasant visit from Mr. August Busch of The U. S. Dept. Agric. who was studying specimens in the Coll. of the American Entomological Society.

Prof. W. G. Johnson, of College Park, Md., states that his article in the May News on certain mites did not appear in print coincidentally with the mites. The mites are expected to reappear about June 9, 1900. Those wishing specimens of the mites will please take notice.

Bugs Called Out Firemen.—A cloud of bugs was responsible for the calling out of the Trenton, N. J., Fire Department last night (May 1st). The bugs were gathered around the steeple of the Fourth Presbyterian Church in such numbers and at such a distance from the ground that a passer-by mistook them for smoke and sent in an alarm. When the Fire Department arrived on the scene, Chief Allen, with the aid of a field glass, discovered the mistake, and the fire companies returned to their houses.—*Philadelphia Record*, May 3, 1900.

Identity of *Hemaris tenuis* and *Hemaris diffinis*. As soon as my *Hemaris tenuis* emerge, I shall be ready with my notes on the identity of *tenuis* and *diffinis*. I am sure that *tenuis*, *diffinis*, *uniformis*, *thysbe*, are the same, in other words, that the Winter pupæ, from mid-Summer larvæ give the even-margined, whitish yellow *tenuis* and eggs of *tenuis*, give the late Spring and early Summer larvæ, which produce in July, *diffinis* in all gradations from whitish, even-margined *tenuis* to reddish yellow serrate *diffinis*, and also Strecker's forms, *æthra*. These are my observations for three years, which I confidently expect to see verified finally by my concluding test of last Summer's brood from eggs of typical *diffinis* in numbers (seventy odd), which should produce *tenuis* this Spring. This last test is simply to verify and check the same observations of two former seasons, only it has been made with scrupulous care. The Spring and late Summer larvæ show no differences in any particular, and the food plant is, of course, the same. *Triosteum perfoliatum*, one of the *Caprifoliaceæ*.—Ellison A. Smyth, Jr., Blacksburg, Va.

The Capture of Platynus caudatus Lec., and Platynus larvalis Lec., in Western Pennsylvania.

By GEORGE A. EHRMAN, Pittsburg, Pa.

Dr. LeConte, in his Descriptions of New Species of North American Coleoptera, Pt. 1, published by the Smithsonian Institute, 1866, on page 7, describes *Platynus caudatus*, and he gives Western States as the habitat of this odd and rare beetle.

Now what I would understand by this record would be that large expanse west of the Mississippi River. Or, if the student of geography wishes to restrict the area, those States west of the Rocky Mountains or great divide; but, be it what it will, I will leave it for the reader to decide, and if Dr. Leconte is correct in the habitat of this species it certainly has a wide area of distribution.

In referring to the late Dr. John Hamilton's catalogue of the Coleoptera of Southwestern Pennsylvania, page 350, the Doctor says: "One example, Jeannette, Pa.;" and again on page 379 of the same work he gives it in these words: "One fine example of this rare species, etc., taken by Mr. H. Klages near Pittsburg." In these two passages the Doctor is mistaken, as I captured this specimen in one of my favorite collecting grounds—Bird's Hollow, near Pittsburg. In refering to my note book of 1891 I find the following entry:

"*Platynus* sp? Taken in a moist stony depression on the east side of Bird's Hollow. The specimen seems to be immature, as it is very pale in color and the least touch dents the elytra. The species is very active, more so than any other species that I have met with in life."

Furthermore, I brought the specimen home alive and kept it in captivity for four days, thinking that by age it would become darker and harder. In this supposition I was mistaken. I then put it in my cyanide jar, after which it was properly mounted with locality and date affixed. Not long after, I had an occasion to go to Allegheny and called to see Dr. Hamilton. I brought my doubtful *Platynus* with me and asked the Doctor for an explanation about the peculiarity of my odd *Platynus*. In looking it up the Doctor found that the species was lack-

ing in his collection. I then donated this rare insect to the Doctor's collection, as I knew he was working on a catalogue of the Coleoptera of Southwestern Pennsylvania. Before I left the Doctor's home that evening I knew the name of the odd as well as rare *Platynus* and promised the gentleman that I would keep a look out for more. So far I have found no other, nor do I know of any other person taking it here, and it still remains the only specimen in the Hamilton collection, which is now in the Carnegie Museum.

Platynus larvalis Leconte. During my collecting in Brown's wood on July 31, 1899, I captured a fine specimen of this strange as well as rare beetle, and as far as the writer's knowledge is concerned it is the first specimen taken in this part of Pennsylvania. This species in life is far less active than *P. caudatus*, and though bearing a superficial resemblance to it, is entirely distinct. The specimen was found in a dryer situation where the soil was composed of dry leaves and leaf mould.

New Scenopinidae from the United States.

By D. W. COQUILLET, Washington, D. C.

Our three genera separate as follows:

1. First posterior cell closed and petiolate, second submarginal cell at least three times as long as distance between apices of third vein and of its anterior branch 2
   First posterior cell open, second submarginal cell less than twice as long as distance, etc. . . . . *Scenopinus* Latr.
2. Body short and robust, bearing numerous scales (type *Scenopinus bulbosus* O. S.) . . . . . *Metatrichia* n. gen.
   Body elongate and slender, destitute of scales *Pseudatrichia* O. S.

Pseudatrichia unicolor n. sp. Black; apices of knobs of halteres white, legs yellow; apices of tarsi, of hind femora and both ends of hind tibiæ brownish; front polished; mesonotum opaque, with rather coarse reticulations; abdomen opaque, the first, fifth and following segments polished; wings hyaline; veins brown, last two sections of third vein subequal in length; costal and subcostal cells brown, an elongate yellowish spot between apices of auxiliary and of first veins; length 6 mm.

Las Vegas, N. Mex. (T. D. A. Cockerell, July 19), and Colorado. Two male specimens. Type No. 4711, U. S. National Museum.

Pseudatrichia griseola n. sp. Head yellow, opaque, gray, pruinose; upper part of occiput and the antennæ black; proboscis and palpi yellow; thorax black, opaque, densely gray pruinose; the humeri and spots on the pleura yellow; scutellum yellow, marked with a median brown vitta; abdomen yellowish, subopaque; knobs of halteres and the legs yellowish; wings hyaline; veins yellow; last section of third vein less than one-half as long as the preceding section; length 3 to 4 mm.

Mesilla, N. Mex. (T. D. A. Cockerell, May 25, 1897), and Los Angeles Co., Cal. A pair from the latter locality, captured by the writer, were resting on the bare ground like a *Thereva*. Two males and one female. Type No. 4712, U. S. National Museum.

A Neglected Platymetopius.

By HERBERT OSBORN, Ohio State Univer., Columbus, O.

Platymetopius hyalinus n. sp.

Elytra hyaline with dark points and fuscous bands arranged, one subbasal, one median and one sub-apical. Face bright sulphur yellow, vertex, pronotum, and scutellum yellow with some infuscation or greenish washes. Length ♀ 5.5 mm.; ♂ 4.25 mm.

Vertex acute, nearly twice as long as width at base, slightly less acute and produced in male, anteriorly depressed and with a conspicuous median impressed line running from base to tip. Front narrow, clypeus widening to apex, loræ almost a half-circle, genæ evenly rounded. Prothorax of usual form, sides short, posterior edge very slightly emarginate at center. Elytra hyaline, without veinlets or narrow lines, the nerves conspicuous, but one transverse vein between second and third sector.

Color: vertex yellow, more or less infuscated, the females showing a yellow wedge anteriorly, the males with deeper infuscation but having a marginal and anterior median stripe lighter. Face clear yellow with a marginal fuscous line just beneath margin of vertex, the margin of cheeks becoming somewhat greenish. Prothorax greenish yellow with slight trace of fuscous anteriorly in ♀ and faint milky irrorations in ♂. Elytral nervures fulvous in ♀, paler in ♂. Three fairly distinct transverse bands of fuscous spots, one, midway on clavus and including first transverse vein consists of transverse fuscous spots behind which to tip of cell is a smoky patch. The middle band includes a distinct black point at tip of clavus and on the nodal vein. The subapical band includes the anteapical transverse veins, the inner and outer of which are black, the fuscous points appearing in outer and middle anteapical cells in proximal part of three apical cells, those in the outer and middle apical cells forming a broken circle. Pectus black with yellow borders on coxal and pleural pieces. Abdomen above black on disk in female, with yellow border and

apex, in male black with marginal yellow spots. Beneath light yellow in female, black in male. Legs yellow with black points at base of spines.

Genitalia: Female, last ventral segment very much produced, reaching nearly half the length of the pygofer, tapering to a rounded point. Pygofer broad with a black spot near apex and a few short yellow bristles. Ovipositor equalling pygofer, black, with pale tip.

Male, valve triangular with an acute median tooth. Plates narrow elongate with the tips curving dorsad in two large hooks, which in normal position would be included between the edges of the pygofer. In all specimens in hand, however, the plates are bent backward on venter, exposing their inner face, and one specimen still in the position of complete coitus shows the plates caught upon the point of the greatly elongated female ventral segment and pushed over against the abdomen. In all specimens in hand it would appear that the position given the plates during copulation had been retained when the specimens were killed.

Described from five females and four males collected in Washington, D. C., June, 1897, by Mr. J. S. Hine, who states that they were very abundant upon an introduced species of maple. It seems strange that the species should have been so long overlooked if a native form; and, as suggested by Mr. Hine, it may be an introduced species brought with some of the exotic plants. If so it would still seem to have escaped the vigilance of the descriptive entomologist, as it can not be referred to any described species.

How a little Tineid Larva lives on what is left of a big Cecropia Caterpillar.

By Henry Skinner and Alfred F. Satterthwait.

Mr. H. W. Wenzel, while looking for Pselaphidæ and Scydmenidæ, can't go by other natural history objects, as his is a case of atavism. His father and grandfather were naturalists, and he has two sons enthusiastically following in their father's footsteps. While collecting these minute Coleoptera, he also collected for us a goodly number of *cecropia* cocoons. These cocoons were sorted over and divided into the heavy ones and light weight ones. The heavy ones contained living cecropia chrysalids and *Ophion macrurum* cocoons, and the light ones larva killed by fungi, dipterous and hymenopterous parasites or by other causes. We were surprised to find in the inner

cocoon of one of these light weight ones about ten cocoons of a Tineid. The *cecropia* cocoon was a fresh one and evidently spun last fall along with the other cocoons, which have since disclosed imagos of *cecropia*. It contained a dead *cecropia* larva on which the Tineid caterpillars had fed. It was covered with silk and frass from the little micros.

The little female Tineid was evidently able to tell that the big cocoon contained a dead giant on which her progeny could live and flourish, so she deposited her eggs at the small end of the *cecropia* cocoon and the little caterpillars on hatching either worked their way through the loose strands of silk at this place or else actually ate their way to the dead *cecropia* larva. After becoming full grown some of the Tineid larvæ ate their way through the inner cocoon and spun up between the inner and outer cocoons of the *cecropia*. Several also perforated the outer cocoon evidently for the purpose of making an exit for the imagos of the Tineid. We reared a number of the little moth and sent one to Dr. W. G. Dietz who pronounced it to be *Tinea fuscipunctella* Haw. We also found another *cecropia* cocoon that had several of the micro cocoons in the dead pupa.

SYNCHLOE LACINIA.—The larvæ of this species are very common in the Mesilla Valley, New Mexico, on *Helianthus annuus*. For a long time I thought they would live on no other plant, but on Aug. 15, 1897, I found them on *Helianthus cilialis*, and also a few on *Xanthium canadense*. On Aug. 23 of the same year, at Mesilla, I found a few larvæ on *Polypteris hookeriana*. The species, therefore, has four known food-plants, all compositæ. The imago is preyed upon by the bug *Phymata fasciata*.

Another sunflower insect, the beetle *Copturodes cockerelli* Casey, was found to occur also on *Xanthium canadense* at Mesilla.—T. D. A. COCKERELL.

THE UNIVERSITY OF ILLINOIS has fallen heir to the Bolter collection of insects, numbering approximately fifteen thousand species, represented by about seventy thousand specimens, besides thirty thousand duplicates not in the systematic collection. This collection, accumulated during the last fifty years by the late Andreas Bolter, a business man of Chicago, is remarkable for the excellence of the material and for the excellent care with which it has been prepared and arranged. It represents all orders of insects and North America in general, and contains also a considerable amount of exotic material. The gift was made by the executors of Mr. Bolter, in accordance with the terms of his will, conditional upon its maintenance as a unit, under the name of the "Bolter Collection of Insects," in a fire-proof building.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted; and this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., JUNE, 1900.

The collecting season is now well inaugurated and a few words on the proper methods of work may not be amiss. Instead of collecting for the pleasure of seeing your captures neatly arranged in rows in the cabinet, take up some problem in entomology and study it to a conclusion. There are many of our common species about which we know nothing of their earlier stages, and those persons living in the country could do excellent scientific work by studying and describing them. If each person would take up a season's work of this kind the aggregate at the end of the Summer months would be surprising. The study of seasonal variation is also most interesting, and to do this intelligently all specimens should have accurate data on the pins. Another field of work is the study of geographical variation; therefore collect large series and exchange with your friends and correspondents. Even common species may be forced to tell interesting stories in this respect. For instance, is not the *Colias philodice* of the East the same as the sulphur butterfly of the West, which goes under another name? Let each entomologist this Summer take up a season's work and publish the result in the NEWS.

CORRECTION.—In the NEWS for May, 1900, page 455, under *E. Calverti*, third long primer line, read "bright blue *females*," instead of "males." Page 458, under *S. madidum* add "a single teneral male."

Entomological Literature.

COMPILED BY P. P. CALVERT.

Under the above head it is intended to mention papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South). Articles irrelevant to American entomology will not be noted. Contributions to the anatomy, physiology and embryology of insects, however, relating to American or exotic species, will be recorded. The numbers in HEAVY-FACED TYPE refer to the journals, as numbered in the following list, in which the papers are published; * denotes that the paper in question contains descriptions of new North American forms. Titles of all articles in foreign languages are translated into English; usually such articles are written in the same language as the title of the journal containing them, but when such articles are in other languages than English, French, German or Italian, this fact is indicated in brackets.

3. The American Naturalist, Boston, May, 1900.—**4.** The Canadian Entomologist, London, Ont., May, 1900.—**5.** Psyche, Cambridge, Mass., May, 1900.—**11.** The Annals and Magazine of Natural History, London, April, 1900.—**15.** Biologia Centrali-Americana, London, pt. cliv, Mar., 1900, rec'd. May 8.—**22.** Zoologischer Anzeiger, Leipsic, Apr. 9, 1900. —**35.** Annales, Société Entomologique de Belgique, xliv, 3, Brussels, Mar. 29, 1900.—**36.** Transactions, Entomological Society of London, 1900, pt. 1, April 26.—**40.** Societas Entomologica, Zürich-Hottingen, April 15, 1900.—**44.** Verhandlungen, zoologisch-botanischen Gesellschaft in Wien, l, 2-3, April 6, 1900.—**78.** The Gardeners' Chronicle, London, 1900.—**81.** Biologisches Centralblatt, Erlangen, 1900.—**128.** Proceedings, Linnean Society of New South Wales, 1899, pt. iv, Sydney, April 7, 1900.

THE GENERAL SUBJECT.—Absolon, K. Some remarks on the Moravian cave-fauna, **22.—B.** The odor of flowers and insects, Wiener Illustrirte Garten Zeitung, April, 1900.—**Cholodkovsky, N.** On the life cycle of the species of *Chermes* and the general questions connected therewith, **81,** April 15.—**Cockerell, T. D. A.** The lower and middle Sonoran zones in Arizona and New Mexico, **3.—Duncker, G.** Methods of Variation-statistics, **81,** April 1.—**Handlirsch, A.** The use of superfluous spermatozoa in the female insect, a notice of the latest work of A. Berlese, figs., **44.—Plateau, F.** New researches on the relations between insects and flowers: 2. The choice of colors by insects. Memoires, Société Zoologique de France, xii, Paris, 1899.—**Schiller-Tietz.** The supposed parthenogenesis in the honey bee, Naturwissenschaftliche Wochenschrift, Berlin, April 8, 1900.—**Smith, J. B.** See review, *post.*—**Walton, L. B.** The basal segments of the hexapod leg, figs, **3.—Wood, J. H.** On the larvæ, habits, and structure of *Lithocolletes concomitella* Bankes, and its nearest allies (cont.): Biological aspects, Entomologists' Monthly Magazine, London, May, 1900.

ECONOMIC ENTOMOLOGY.—Alwood, W. B. Spraying the orchard, figs., Bulletin No. 100, Virginia Agric. Exper. Station, Blacksburg, Va., May, 1899, rec'd. May, 1900.—**Anon.** Report of the Malaria Expedition to Sierra Leone, Nature, London, April 26, 1900.—

Anon. The study of ticks and the diseases caused by them, New York Medical Journal, May 12, 1900.—**Beach, S. A. Lowe, V. H.,** and **Stewart, F. C.** Common diseases and insects injurious to fruits, figs. Bulletin 170, New York Agric. Exper. Station, Geneva, N. Y., Dec., '99. —**Chittenden, F. H.** Some insects injurious to garden crops, figs. Bulletin 23, new series, U. S. Depart. Agric. Division of Entomology, Washington, 1900.—**Cockerell, T. D. A.** Some insect pests of Salt River valley [Arizona] and the remedies for them, Bulletin 32, Arizona Agric. Exper. Station, Tucson, Arizona, Dec., 1899.—**Felt, E. P.** Insects injurious to forest trees. Extract from Fourth Annual Report of the Commissioners of Fisheries, Game and Forests of the State of New York. 1898. 4to., 23 pp., figs., 3 col. pls. Rec'd. April 30, 1900.—**Fernald, C. H.** Report of the Entomologist, Twelfth Annual Report of the Hatch Experiment Station of the Massachusetts Agricultural College, Boston, Jan., 1900.—**Forbes, A. C.** The elm-bark beetle [*Scolytus destructor*], **78,** March 17.—**Laurent, E.** The employment of nicotine as an insecticide in agriculture, Bulletins, Société Nationale d'Agriculture de France, lx, 3, Paris, Mar., 1900.—**Ménégaux, A.** On the "grasserie" [or "yellowing"] of the silk worm, 2 figs.; On a curious parasite of the silk worm (*Ugimyia sericariæ* Rondani), 1 pl. Bulletin Scientifique de la France et de la Belgique, xxxii, Paris, 1899. Rec'd. April 28, 1900.—**Ronsisvalle, M.** On the morbid effects of Ixodidæ on man, Atti della Accademia Gicenia di Scienze Naturali in Catania, lxxvi, 1899.—**Smith, R. G.** The tick fever parasite, **128.**—**Webster, F. M.** The clover root borer, *Hylastes obscurus* Marsham, fig., 1 pl.; Bulletin No. 112, Ohio Agric. Exper. Station, Wooster, Ohio, Dec., 1899—**Wesché, W.** The earwig, **78,** April 28.

ARACHNIDA.—Cambridge, F. O. P. Arachnida Araneidea, vol. ii, pp. 105-120* [Ctenidæ Selenopidæ, Heteropodidæ], **15.**

MYRIOPODA.—Brölemann, H. W. Myriopodological notes, figs., **22.**

ORTHOPTERA.—Blatchley, W. S. On the species of *Nemobius* known to occur in Indiana*, **5.**—**Brunner von Wattenwyl.** Orthoptera collected by the Belgian Antarctic Expedition, **35.**

NEUROPTERA.—Calvert, P. P. Odonata of New Jersey, see Smith, J. B., review, *post.*

HEMIPTERA.—Baker, C. F. American species of *Macropsis* (Jassidæ)*, **5.**—**Champion, G. C.** Rhynchota Heteroptera, vol. ii, pp. 305-312* [Anthocoridæ], **15.**—**Chittenden, F. H.** [*Gargaphia angulata, Nectarophora destructor*], See Economic Entomology.—**Cholodkovsky, N.** See the General Subject.—**Cockerell, T. D. A.** Note on the pigments of the Coccid *Chionaspis furfura* Fitch, Science, New York, April 27, 1900.—**Id.** Four new Coccidæ from Arizona, **4.**—**Distant, W. L.** Rhynchotal notes, iv. Heteroptera: Pentatominæ (part.), **11.**—**Id.** Undescribed genera and species belonging to the Rhynchotal family Pentatomidæ, 1 pl., **36.**—**Fowler, W. W.** Rhyn-

chota Homoptera, vol. ii, pl. xvii, **15.—Morse, E. S.** A bubble-blowing insect [*Aphrophora*], figs., Appletons' Popular Science Monthly, New York, May, 1900.—**Osborn, H.** Homoptera of New Jersey, see Smith, J. B., review, *post.*—**Pergande, T.** Thysanoptera of New Jersey, see Smith, J. B., review, *post.*

COLEOPTERA.—Arrow, G. J. On pleurostict Lamellicorns from Grenada and St. Vincent (West Indies), **36.—Bourgeois, J.** Dascillidæ collected by the Belgian Antarctic Expedition, **35.—Brenske, E.** Scarabæidæ collected by the Belgian Antarctic Expedition, **35.—Carpentier, L.** Hibernation of Coleoptera, Bulletin, Société Linnéenne du Nord de la France, 317, Amiens, May, 1899.—**Chittenden, F. H.** [*Systena blanda, Cerotoma trifurcata, Epicærus imbricatus, Spermophagus pectoralis, Ceutorhynchus* spp., *Lixus concavus, Haltica ignita, Xylocrius Agassizii*], see Economic Entomology.—**Cobelli, R.** Contributions to the biology of *Lophyrus pini* L., **44.—Fairmaire, L.** Heteromera collected by the Belgian Antarctic Expedition, **35.—Lameere, A.** Cerambycidæ collected by the Belgian Antarctic Expedition, **35.—Lea, A. M.** Revision of the Australian Curculionidæ belonging to the subfamily Cryptorhynchides, pt. iv, **128.—Manger, K.** Coleoptera in paraffin [for transportation, not recommended], **40.—Pic, M.** New Pedilidæ and Anthicidæ, **44.—Rousseau, E.** Carabidæ collected by the Belgian Antarctic Expedition, **35.—Sharp, D.** Coleoptera, vol. ii, pt. 1, pp. 585-608, pl. xviii* [Cryptophagidæ], **15.—Wasmann, E.** New Paussidæ, with a biological supplement, 2 pls. Notes from the Leyden Museum, xxi, 1-3, Dec., 1899.—**Wenzel, H. W.** Scydmænidæ and Pselaphidæ of New Jersey, see Smith, J. B., review, *post.*

DIPTERA.—Cockerell, T. D. A. *Scriptotricha* or *Paracantha?* **11.—Coquillett, D. W.** Report on a collection of dipterous insects from Puerto Rico*; Proceedings, U. S. National Museum, No. 1198, Washington, 1900.—**Jacobs.** Diptera collected by the Belgian Antarctic Expedition, **35.—Johnson, C. W.** Diptera of New Jersey, see Smith, J. B., review, *post.*—**Melander, A. L.** A decade of Dolichopodidæ*, figs., **4.—Pantel, J.** *Thrixion halidayanum* Rond. Monographic essay on the external characters, the biology and the anatomy of a parasitic larva of the group of the Tachinairia, 6 pls. La Cellule, xv, 1. Lierre et Louvain, 1898. A great monograph of 290 quarto pages, dealing with the external morphology of egg, larva, pupa and adult (42 pp.). biology and etiology (34 pp.), and anatomy (240 pp.).

LEPIDOPTERA.—Caspari, W. On *Acronycta* [eggs, larvæ], **40.—Chittenden, F. H.** [*Monoptilota nubilella, Elasmopalpus lignosellus, Hellula undalis, Laphygma frugiperda, Sesia rutilans.*] See Economic Entomology.—**Dietz, W. G.** Tineoidea of New Jersey, see Smith, J. B., review, *post.*—**Druce, H.** Lepidoptera Heterocera, vol. i, pp. i-xxxii, vols. ii and iii title-pages and contents, **5.—Dyar, H. G.** The larva of *Eustixia pupula* Hübn., **4;** Larvæ from Hawaii, a correc-

tion, **4**; Life histories of North American Geometridæ, xi, **5.—Fauvel, A. A.** Walking cocoons, figs., La Nature, Paris, April 21, 1900.—**Gibson, A.** Some interesting moths taken at Ottawa, Ottawa Naturalist, April-May, 1900.—**Grote, A. R.** The descent of the Pierids, 4 pls., Proceedings, American Philosophical Society, No. 161, Philadelphia, January-March, 1900.—**Lyman, H. H.** An entomological muddle: a review [*Hyphantria cunea, congrua, antigone, textor*], **4.—Moffat, J. A.** *Hydroecia stramentosa*, **4.—Montgomery, T. H., Jr.** On nucleolar structures of the hypodermal cells of the larva of *Carpocapsa*, 1 pl., Zoologische Jahrbücher, Abth. für Anatomie u. Ontogenie der Thiere, xiii, 3, Jena, April 10, 1900.

HYMENOPTERA.—André, E. Thynnidæ collected by the Belgian Antarctic Expedition, **35.—Ashmead, W. H.** Classification of the fossorial, predaceous and parasitic wasps, or the super-family Vespoidea, **4.—Id.** Hymenoptera (in part) of New Jersey, see Smith, J. B., review, *post*.—**Branner, J. C.** Ants as geologic agents in the tropics, figs., Journal of Geology, viii, 2, Chicago, Feb.-March, 1900.—**Konow, F. W.** New contribution to synonymy of the Tenthredinidæ, Wiener Entomologische Zeitung, xix, 4-5, May 1, 1900.—**Schiller-Tietz.** See the General Subject.—**Tosquinet, J.** Hymenoptera collected by the Belgian Antarctic Expedition, **35.**

Smith, J. B. Insects of New Jersey, a list of the species occurring in New Jersey, with notes on those of economic importance, 328 figs., 2 maps, 755 pp. 27th Ann. Rep. State Board of Agric., 1899 (Supplement). Trenton, N. J., 1900. A valuable list of this part of the fauna, preceded by 34 pp. on "Insects and their control," including a brief interesting chapter on development and a genealogical tree of the twenty-two orders recognized. Alphabetical indexes of the localities and individuals quoted, and of the families and genera represented, add to the accuracy and usefulness of the volume. No figures are new; they chiefly illustrate species of economic importance. Much aid in the preparation of the book was furnished by various specialists, as indicated under the various orders (*ante*). Statistics of the species listed are given on p. 701, according to which the total number is 8537, of which 1193 are Diptera, 1718 Hymenoptera, 1570 Lepidoptera, 2845 Coleoptera, 399 Homoptera, 340 Hemiptera, 144 Orthoptera, the other orders less than 100 each. The total exceeds, by 2439 species, Prof. Smith's similar list of 1890, and he predicts an equally great percentage of increase in the next decade.

Dr. H. F. WICKHAM will take a collecting trip this Summer to the Pacific States.

DR. F. E. BLAISDELL, of Mokelume Hill, Cala., started for Alaska on May 10th and will not return until October. He expects to find some fine insects in the North.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

PROF. A. J. SNYDER expects to pass the Summer in Colorado collecting.

MR. LANCASTER THOMAS will go to Cranberry, N. C., and keep his eyes open for species new to the locality.

DR. A. FENYES, of Pasadena, California, will start on a collecting trip to the Atlantic coast on the first of June and will return to Pasadena in October.

NOTES ON A FEW NORTH AMERICAN SPECIES LISTED AS NOCTUIDÆ.—In two letters, dated respectively, August 12, 1899, and April 7, 1900, Sir George F. Hampson sends the following notes on some species which stand in our present lists as Noctuidæ.

Hexeris Enhydris Grote=*Ottolenguia reticulata* Beutenm., belongs to the Thyrididæ.

Gyros Muirii, H. Edw., which I see you include in the Noctuidæ is (teste specimens in Grote collection which agree with description) a Pyrale=*Monocona rubralis* Warr.; v. my revision of Pyraustinæ in Proc. Zool. Soc., 1899, p. 232.

Lepidomys Irrenosa Guen., Noct. ii, p. 201 (1852); Smith, Cat. Noct., p. 315, is a *Pyrale* of the subfamily Chrysauginæ and is the male of *Chalinitis olealis* Rag., Ann. Soc. Ent. Fr., 1890, p. 529; Hmpsn., Proc. Zool. Soc., 1897, p. 684.

The forewing of the male has no costal tympanic vesicle as in the other species of the genus, but has an antemedial tuft of scales on median nervure, with a smaller tuft below it in the submedian fold. It differs from the female described by Ragonot in the forewing having the portions of the ante and postmedian lines, which are bent inwards to the costa, white; the outer part of the tuft of scales on median nervure and the tuft in submedian fold white.

Type New York in Mus. Brit.

Pseudcraspedia melanosticta Hmpsn., Trans. Ent. Soc., 1898, p. 256, pl. xvii, f. 6, from St. Vincent=*Acidalia basipunctaria* Wlk., from Florida, is a Noctuid.

It is a matter for congratulation that the British Museum material is undergoing critical study by so competent a worker as Sir George F. Hampson and we may now hope to eliminate the few remaining doubtful names that remain in our lists.—J. B. SMITH.

Stenomimus Pallidus BOH.—On a flat-topped hill overlooking the beautiful Miami Valley in full view of the Little Miami River, winding its serpentine course through fertile bottom lands, is situated one of the prehistoric burial places from which so many relics of a vanished race have been exhumed. On this spot nature has lavished her choicest treasures. Hugh oak and other trees, with a rank growth of smaller

vegetation, covers the spot so completely that few persons know of its existence. Here the "Kentucky Warbler" (*O. formosa*) and the "White-browed Warbler" (*D. dominica albilora*) find an unmolested nesting place. I have taken many rare insects of all orders here, particularly Coleoptera. May 11, 1900, while searching for minute beetles I lifted the loose bark from a freshly fallen oak log and found a colony of *Stenomimus pallidus* that contained hundreds of this beetle. I picked out 120 in a few minutes. I have never before taken this curious little weevil, which is one of the smallest North American species. It is very slender in form and of pale brown color and might easily be mistaken for *Bactridium*, which was associated with it. Its larvæ had eaten galleries through the decaying fibres of the inner bark—CHARLES DURY, Cincinnati, Ohio.

NEW LIGHT ON THE BEE-GENERA MEGACILISSA AND MACROTERA.—I have just received the following important information from Mr. W. F. Kirby of the British Museum: "*Megacilissa superba* Smith is a Chilian species, and = *Caupolicana fulvicollis* Spin. Mr. Waterhouse and I have carefully examined *Perdita halictoides* and *Macrotera bicolor* Smith, and find that Smith's drawings of the dissections are quite accurate; and that although Smith says the palpi of *Perdita* are wanting, and there is no trace of them in the specimen, yet they are included in his own figures, which is very odd. I find that *Macrotera* was obtained from Mr. E. P. Coffin in 1843, but I do not know from what part of Mexico. Perhaps this might be discovered by hunting through Westwood's publications."

This shows that *Megacilissa* is a pure synonym of *Caupolicana*, as was suggested in Ann. Mag. Nat. Hist., Dec., 1899, p. 412.* It also confines the distinctness of *Macrotera* from *Macroteropsis* and *Hypomacrotera*. As for *Perdita*, Smith's figures of the palpi are drawn with dotted lines, and are undoubtedly hypothetical. Under the circumstances set forth in Ann. Mag. Nat. Hist., Dec., 1899, p. 315, it is evident that we shall for the present have to remain wholly uncertain as to what is genuine *Perdita*.—T. D. A. COCKERELL, Mesilla Park, N. M., Feb. 2, 1900.

A BEE-FLY FOUR YEARS IN THE LARVAL STATE. IS THIS A RECORD?—In Volume I, Part 3, of the Proceedings of the Southern California Academy of Sciences may be found a short descriptive article on the habits and parasites of one of the most interesting bees of California, *Anthophora montana* Cress. Its interesting habit of tower building is there illustrated and need not be further commented upon. *Anthophora montana*, like many other species of mining bees, live in colonies, and may be found year after year occupying the same spot of ground. Each season the old shafts are cleaned out or new ones are sunk till the earth when turned over seems to be but a mass of clay cells of all ages.

On the 15th day of July, 1895, I unearthed a number of cells of *A. mon-*

* *Megacillisa yarrowi* Cresson, 1875, will become *Caupolicana yarrowi*; but *M. thoracica* Fox, and allied species, may have to be separated generically.

tana, many of which were evidently affected by parasites of various kinds. In the article above referred to, I have stated that nearly half of them are affected by parasites, and subsequent observations but confirm the truth of my first conclusions. Ten of the parasitized cells, which I presumed were occupied by bee-flies, I preserved and put in a box to hatch out.

That same season one *Sphæropthalmia* and one bee-fly hatched out. In 1897, two years after, one bee-fly pupated but soon afterwards died. The next season, thinking that the lack of the moisture naturally supplied them in their normal habitat was the cause of their continued quiescence, I kept moist blotting paper in the box; but though the larvæ were quite active and wriggled about the box none of them transformed. In the Autumn of that year I removed from Los Angeles to Clifton, Arizona, and brought the larvæ with me. During the winter a few of them withered up and died, but in July, 1899, the remaining four, after a short period of pupation, safely emerged.

These larvæ were in my possession for full four years before hatching out. How long they had lain in the ground prior to my visit it is, of course, impossible to say, but one, at least, of these was found in a cell that was surrounded by the rootlets of grass of the preceding season.

Probably the unnatural conditions under which these larvæ were kept may have conduced to their long survival, but in any event the time appears to me a record one.

In a paper already published in the ENTOMOLOGICAL NEWS on the habits of *Anthidium consimile* Ashm., and its long continuance in the larva state, I have suggested that this is probably a provision for ensuring the perpetuation of a race in a climate prone to continuous droughts. This may be another exemplification of the truth of this supposition.

Two of the species hatched were sent to the U. S. Dept. of Agriculture at Washington and were examined by Mr. Coquillett, who found them to be *Anthrax editilia* Say, a common species in Southern California.—ANSTRUTHER DAVIDSON, M. D., Clifton, Arizona.

NOTES ON ANTHICIDÆ.—What seems to be a new species of *Stereopalpus*, nearly allied to *guttatus* Lec., occurs in Colorado. I have many specimens from various parts of the mountains; it is very sparingly pubescent, and it is possibly *guttatus* with the spots shaded; but it occurs in so many specimens that it is at least indicative of an undescribed species intermediate between *guttatus* Lec. and *pruinosus* Lec. In the genus *Anthicus* the distinctions between *formicarius* Laf. and *cinctus* Say seem rather dubious, depending largely upon the granulation of the thorax and punctuation of the elytra. I note two fine specimens of *Anthicus leconte* Cham. from Gunnison, Col. Among Mr. Wickham's specimens from Brownsville, Texas, I note (11) *Anthicus occidentalis* Cham.; (10) *Anthicus dromedarius* Laf.; (72) *Anthicus spinicollis* Laf. My specimens of the latter from Vera Cruz, Mex., are identical with the Texas examples; provisionally I unite with it (60) and (236) varying somewhat, but not sufficiently to definitely establish a new species with-

out further research; (131) I refer to *Anthicus asphaltinns* Cham.; (145) from Laredo, Texas, is *Anthicus horridus* Lec.; the whole, excepting the last, forming quite an interesting little group of additions. *Anthicus bigultatus* Lec., I note one example from the mountains of British Columbia, and another from the Williams River Valley, Col., as well as from Utah and California. Examples of a species, at present referred by me to *Anthicus melancholicus* Laf., occur here (Brookline, Mass.), not rarely in the nests of the large red and black ants. *Anthicus* is one of the many genera where large series of specimens from a wide range of territory are an obsolute prerequisite to any rational understanding of the group.—FRED. C. BOWDITCH.

SOME notes about the weather and some butterflies in South Mississippi, from March, 1900:—March brought us some very fine weather; from the 5th to the 8th the temperature ranged from 60 to 68, dropping down to 46 by the 11th, gradually getting warmer again; by the 15th the mercury registered 66 again, when a sudden change set in on the 16th plunging down to 36; but it moved the day following, and by the 19th the thermometer registered 64 again. The degrees of thermometer given is the morning temperature; at noon the highest was 76, the lowest 48 degrees. The first warm spell in the beginning of the month, numerous Graptas sp.? were observed. Never before have I seen so many Graptas, they all went westward without stopping, though on the 11th I observed some on dewberry blossoms in my garden. I left them unmolested; however, I was not inclined for a catch. At the same time a good many *Papilio ajax* were seen; these seemed to be inclined to the contrary, they all seemed to go eastward. This seems to be very remarkable that one kind be inclined one way and the other some other way. Some *Danais* and also *Callidryas* seem to be always present. From the skippers (Hesperidæ) the soot-wing "*Pholisora cutullus*" shows up first. *Phyciodes tharos* and wood nymphs can now be seen. In my garden the phlox, verbenas and several other flowers are now in full bloom (roses are scarce yet). I noticed one *Papilio palamedes* yesterday amongst the phlox. On the 25th I saw a beautiful *Anæa*, the brightest I ever observed. I should say that if *Vanessa atlanta* is entitled to be called Admiral, *Anæa portia* is entitled to be called Cardinal. I succeeded in taking a specimen each of *portia* and *andria* in April, '99.—C. FORKET, Ocean Springs, Miss.

Doings of Societies.

At the February meeting of the Newark Entomological Society the regular routine of business was enacted. Mr. Ronke was proposed for membership and that is about all, except that each member brought specimens of *Sesia*, which were compared by the members.

A meeting was held in Turn Hall, Sunday, April 8, with eight members present. But little business of importance was transacted. President Kemp reported the capture of *Acontia delecta* at Elizabeth on July 7, 1899. It was decided to hold a field meeting at Hemlock Falls on the second Sunday in May. There being no further business the meeting adjourned.

WILLIAM H. BROADWELL, *Secretary.*

A special meeting of the Harris Club was held at 35 Court Street, Boston, on Saturday evening, March 3, 1900. Mr. A. H. Kirkland was unanimously elected to membership. Mr. Newcomb exhibted specimens of some of the rarer North American *Catocala*, and also made some interesting remarks on the life-history of *Thyridopteryx ephemeræformis*. Mr. Weeks showed a large number of butterflies secured by his collector in Bolivia, and invited the members of the Club to visit him at his house on March 11th.

The fifth regular meeting was held on the evening of Friday, March 23d. Mr. H. K. Burrison was unanimously elected to membership. Mr. Newcomb made some entertaining remarks on the subject of newspaper Entomology. Mr. Field spoke at some length on the colors of insects, and the physical principles underlying the effects observed. The same speaker afterward outlined some interesting problems in the distribution of *Anthocharis genutia*. A general discussion of methods employed in collecting about electric lights followed.

W. L. W. FIELD, *Secretary.*

The sixth regular meeting of the Harris Club was held at 35 Court St., Boston, on Friday evening, April 20, 1900.

With reference to the abnormally large cocoons of *Attacus cecropia*, which were discussed at the meeting held on February 16, Mr. Newcomb called attention to Dr. Skinner's investigation of the correlation between the aspect of the cocoon and the sex of the inmate (ENT. NEWS, 1-19). Mr. Field remarked that the cocoons in question were not of the ordinary female type, which is well known to collectors, but were much larger and more globular in shape. He quoted a letter recently

received from Mr. J. Alston Moffat, of London, Ontario, who is well acquainted with these "inflated cocoons," and has suggested that they may be spun only by parasitized larvæ, since he had never known an imago to emerge from one. Several persons dissented from this view, stating that they had hatched female moths from "inflated" cocoons. All who took part in the discussion were agreed on these points: (1) That the "inflated" cocoons belong to a distinct and rare type, always found in bushes near the ground, and never disclosing male imagos; (2) That the cocoons of the female type described by Dr. Skinner also occur near the ground but are smaller and more uniform in shape; (3) That cocoons of the "male type," found among the upper branches of trees and shrubs, occasionally shelter female pupæ.

Early insects already seen on the wing were reported by various members. *Brephos infans* seems unusually common this year. Mr. A. P. Hall caught a female *Gastropacha americana* at the electric light on April 10. Mr. Newcomb mentioned the fact that all the hibernated specimens of *Vanessa antiopa* he had taken this spring were females.

A general discussion of the different forms of lamps used in collecting at sugar brought out the fact that bicyle lamps possess many advantages over ordinary bull's-eye lanterns. Portable electric lamps, so arranged in front of the collector as to leave both hands free, are very useful.

Mr. W. D. Denton spoke of seeing an albino male *Colias philodice* in the collection of Mrs. Richardson, of Brooklyn, N. Y.

W. L. W. FIELD, *Secretary*.

A meeting of the American Entomological Society was held April 26th, with Dr. P. P. Calvert, president, in the chair. Fifteen persons were present. Mr. Laurent presented eight specimens of Coleoptera and stated that his neighbor, Mr. Rod, had taken in his wine cellar *Orthoperus atomarius*, which, according to Mr. H. C. Fall, is an introduced species. Mr Henry Wenzel exhibited a large collection of Pselaphidæ, made at Anglesea, New Jersey, representing the saline fauna.

The haunts and habits of these had previously been unknown to the speaker and a number of the species were new to the New Jersey fauna. The smallest Scydmenid and the smallest Pselpahid were also shown. The saline fauna was said to differ very greatly from the near-by fresh-water ponds. The same speaker also exhibited a fine specimen of *Panagæus crucigerus* and stated that another specimen had been taken at Anglesea by his son. The dates were April 16th and May 20th, on loose sand. Mr. Lieback stated that the specimens previously taken by the late Dr. John Hamilton at Brigantine Beach were found under pieces of caked sand. Mr. Laurent read an interesting paper, giving the itinerary of his last Summer's collecting trip to Colorado and Utah in company with Henry Skinner and A. J. Snyder. Mr. Wenzel presented an interesting and valuable letter to the society. It was an invitation to his grandfather, Henry Feldman, to attend the organization meeting of the Entomological Society of Philadelphia in 1859. On motion of Mr. Fox a vote of thanks was tendered to Mr. Wenzel for his gift to the society.

DR. HENRY SKINNER, *Secretary*.

At the last meeting of the Feldman Collecting Social, held April 18, 1900, at the residence of H. W. Wenzel, 1523 S. 13th Street, ten persons were present.

Dr. Skinner referred to some Cecropia cocoons recently collected by Mr. H. W. Wenzel. One specimen had inside of the inner cocoon specimens of the chrysalis of a moth. He believed it likely that the female moth had oviposited on the outside of the cocoon and the young penetrated after birth.

He referred to a recent discussion as to the cause of the size of certain Cecropia cocoons and pointed out that the thick cocoons are those of females and the thinner ones males. This he had proven by segregation of the robust and slender cocoons.

Dr. Strecker corroborated Dr. Skinner on this point, as he had had similar experience with these cocoons.

The question was further discussed by Messrs. Smith, Strecker and Skinner.

In reply to Mr. Johnson, Prof. Smith stated that it is quite possible to distinguish the sex in the larvæ of certain insects.

Mr. Johnson referred to the presence of apparently perfect testes in young crickets.

Prof. Smith said that while the testes may appear perfect yet they contain no spermatozoa. The testes may be full grown after the second moult.

Dr. Skinner referred to a dead specimen of a Gallinule received which was covered with ear-wigs. He believed they infested the bird before death.

Prof. Smith referred to Dr. Skinner's remarks on the presence of Tineid pupa in the cocoon of Cecropia. He did not believe it a case of parasitism and the facts did not warrant a conclusion in the matter.

In reply to Prof. Smith, Dr. Skinner said that the pupa of the Cecropia was destroyed.

Dr. Strecker referred to a case where foreign bodies had been spun up accidentally in a cocoon of Columba.

Mr. Johnson exhibited *Therioplectes astutus* from Delaware Water Gap, a species not recorded from New Jersey.

Dr. Skinner referred to the belief that malaria is caused only by mosquitos and by species belonging to one genus, and remarked on the experiments to be carried on by the British Government with mosquitos in malarial districts.

In reply to Prof. Smith, Mr. Johnson stated that *Anopheles* is scarce in this locality, though he had found *Anopheles quadrimaculata* commonly in Florida on one occasion. He had been subjected to a severe attack of malaria shortly after being bitten by this species of mosquito.

Prof. Smith stated that some years ago, near Brooklyn, the ground having been torn up for certain purposes, almost every one in the neighborhood had acquired malaria, which was attributed of course to the turning up of the soil. Moreover, mosquitos were not abundant at that time, and he had never found *Anopheles* there. He did not bring this forward to show his disbelief in the theory that the mosquito is responsible for the disease, but to show that it also comes from other causes.

WILLIAM J. FOX, *Secretary*.